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Overcoming Barriers to Openness: The Transformative Role of Digital Technologies in the Case of Theatre Education

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Abstract:

Purpose: *The present study aims to investigate and analyze the perspectives of theatre education teachers regarding the implementation of open education and its principles in classrooms, focusing on the transformative role of digital technologies in theatre education. The purpose of the research is to identify the barriers and enablers in integrating digital tools to promote creativity, collaboration, and inclusivity in theatre education in primary schools.*

Design/Methodology/Approach: *A quantitative research approach was employed, gathering data from 120 theatre education teachers in Greece. Data were collected using an online questionnaire consisted of closed- and open-ended questions, addressing demographic factors, theatre education teachers' perspectives on openness, and the role of digital tools in theatre education. The findings were analyzed using descriptive and inferential statistics.*

Findings: *The findings of the study revealed that while theatre education teachers recognize the value of open education and digital tools, the integration of such digital technologies in fostering openness remains insufficient. Specifically, findings showed that theatre education teachers in primary education face barriers, such as limited training which in turn minimizes their digital skills, inadequate infrastructure in their workplace, and traditional educational mindsets which prevent innovation. Digital tools like digital storytelling, interactive videos, digital platforms, virtual reality (VR), and augmented reality (AR) were recognized for their potential to enhance students' engagement, creativity, and collaboration in theatre education. Participants also pointed the need for redesigned curricula, ICT-focused professional development, and strengthened teacher collaboration among peers and with others such as the wider school community.*

Practical Implications: *The above-mentioned findings emphasize the need for systemic investment in ICT infrastructure, digital training for theatre education teachers and curriculum development to facilitate the integration of digital tools in theatre education and generally in education. The study highlights practical implications for advancing digital integration in education. Schools can use digital tools such as, interactive videos, digital storytelling, digital platforms, virtual and augmented reality to improve creativity, teamwork, and inclusiveness in theatre education. It is important to invest in infrastructure and offer specific training for teachers to fill gaps in technology knowledge and resources.*

Originality/Value: *This research contributes to the understanding of how digital*

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technologies can enhance open education, particularly in the context of theatre education which still remains a relatively underexplored area. The current study also offers practical insights for educators, policymakers, and administrators seeking to modernize teaching practices and foster inclusivity through innovative approaches.

Keywords: *Digital technologies, digital storytelling, virtual reality, interactive videos, teacher training, open education, theatre teaching, primary education.*

JEL Codes: *I20, I23, I28, O33.*

Paper Type: *Research article.*

1. Introduction

The issue of the implementation of "openness" in the field of education is of particular interest and has been of great concern to both the state and educational community. According to Sakkoula and Lionarakis (2024), open education is based on an ideal where all people have the right to education, and the state has a duty to provide educational opportunities and free access to them for all citizens.

A school that operates in terms of openness is student-centered and inclusive, as it accepts diversity by indiscriminately offering educational opportunities to all students (Zambeta *et al.*, 2017), activates the learner by leading him/her to autonomy and knowledge discovery and adopting new technologies and teaching methods (Haleem *et al.*, 2022).

In addition, through the inclusion and cooperation of all stakeholders of the school and wider community, it improves its effectiveness and efficiency, democratizes, opens to society, and adapts to uncertain and unstable environmental conditions, attributing the good of knowledge to the society to which it belongs (Sharma and Adeoye, 2024). However, there are several obstacles that hinder the implementation of openness in schools, such as teachers' anchoring in teacher-centered methods, the curriculum (Murphy, 2013), the formal relations of teachers with parents and the lack of a culture of cooperation (Wake and Mills, 2018), the ethnocentric character and culture of the school itself that intensifies educational and social inequalities (Bourdieu, 1977), and the lack of appropriate training (Pelgrum, 2001).

The implementation of openness in today's schools is a challenge that, in order to be achieved, requires people with social sensitivity, a high sense of responsibility, understanding, tolerance of diversity, professionalism, training, a culture of cooperation, ethics and democratic principles (Grant and Sleeter, 2012; Wake and Mills, 2018).

The state has provided relevant laws, intellectual and psychosomatic development of students regardless of gender and origin (1566/1985), the provision of intercultural education to people with educational, cultural, and social particularities (2413/1996), but also with Law 4547/2018, the promotion of inclusive education, the fight against all forms of discrimination and exclusion, the training of teachers, the adoption of new technologies in educational practice, and, in general, the opening of schools to the educational community, through the dissemination of good practices and the development of cooperation between teachers, parents, and schools.

Consequently, the condition of openness is crucial because it mitigates social and educational inequalities, promotes social justice, eliminates tendencies towards xenophobia and racism, reduces the reproduction of stereotypes of people with special needs and social and economic disadvantages, and reduces the risk of stereotyping. This study aims to explore the extent to which openness is implemented in Greek primary education, examine theatre education teachers' perspectives, and identify factors that influence this process.

In light of the increasing integration of digital technologies in education, this study also investigates how these tools can support openness, particularly in fostering innovative and inclusive practices in subjects, such as theatre education. The integration of digital technologies into theatre education offers a unique lens for understanding and promoting openness. Through digital storytelling, virtual stage design, the making of interactive videos and collaborative online platforms, students can engage in diverse perspectives, enhance their creativity, and participate in inclusive learning experiences.

By analyzing theatre education teachers' views on these aspects, this research aims to provide actionable insights into how openness can be achieved in Greek primary education through the dual lenses of inclusivity and technological innovation. To achieve the aim of this study, the following research questions were formulated:

RQ1. How do theatre education teachers perceive the role of digital technologies in enhancing openness in education?
RQ2. What are theatre education teachers' perspectives on the use of digital tools (e.g., digital storytelling, virtual stage design) in enhancing student engagement in theatre education?

The paper is organized as follows. After explaining the importance and the research aim and research questions in the introduction section, the second section describes the concepts of openness and open education, the relationship between digital technologies and openness, and their impact on theatre education at schools. Next, the third section presents the methodological framework of the research which includes the research approach, the research process, the creation of the data collection tool, the description of the sample, as well as ensuring the validity and

reliability of the research. Section four presents and analyses the results of the research, and finally, section five provides a discussion and presents the conclusions and recommendations for further research.

2. Literature Review

2.1 Openness and Open Education

According to Lionarakis and Lykourgiotis (1999) open education or "open education" refers to an ideal, a philosophy according to which education is a right of all people and they can acquire it throughout their lives. The state must provide educational opportunities and free access to all citizens. The concepts of open education and distance education are wrongly used as identical because the former refers to the good of education and the latter refers to an educational method that can be used in closed educational systems (Saykılı, 2018).

Lionarakis (2001) differentiates open from distance education and defines the concept of open education "as an educational and political concept, attitude, and strategy that was and is used to indicate the trends of educational policy of expansion, access and opening of educational institutions, educational programs, and ministries of education". Peters (2009) approaches openness in education as a socio-political project because of the rapid development of technology, and the Internet aims at global access to information and knowledge and promotes social justice, transparency, and open democracy by making citizens global personalities who can even have a say in the way society is governed.

Dalsgaard and Thestrup (2015) consider open education as a component of a more general political and social movement linked to a democratic society. According to Holmberg (2003), an educational institution is open if it meets the needs of learners in terms of educational material, time, place, pace, and mode of learning. Elom *et al.* (2024) agree with the above factors of openness and add that open education is a natural process of realizing learning, where the subjects themselves learn through their own efforts, even in the case of learning through others. From the above it can be seen that initiative, freedom of choice and student autonomy are key parameters of open education.

This is supported by John Dewey, who laid the foundations on which modern scholars have based their concept of openness. In his work Democracy and Education, Dewey (2024) states that the free transmission of knowledge, ideas, and experience is the main condition of democracy and education.

In a democratic society there should be equal opportunity for experience and initiative and critical thinking should be encouraged through the learning process Dewey (1938), in his other work "Experience and Education," as a key representative of progressive education, influenced by the difficult socio-political

conditions of the time, the crisis of 1929 and the rise of Nazism, records his modern pedagogical ideas for a student-centered school that focuses on experiential learning and the active participation of the student, innovations, extra-curricular activities and, through the interaction of the school with social life, the school's openness to society and the adaptation of the school curriculum to the specificities of the pupil and the local community.

In the same book, he lists the differences between the traditional and the progressive school, where the teacher abandons the teacher-centered model and pushes the pupil through creativity, self-activity, critical thinking, and the use of experience in a constructive approach to learning. From the above, it is clear that the author approaches openness through the concepts of freedom and democracy, but also from a school open to society and the discovery of knowledge by the student himself.

According to Rogers and Church (1975) openness is defined in educational practice by 'open' teachers who focus on cooperation, solidarity and love among young learners. Paulo Freire implemented a model pedagogical program for literacy in Brazil in the 1960s, aimed at the social liberation and personal development of men (Shih, 2020). Freire (2000) promoted the value of critical literacy, the main characteristic of which is spontaneous dialogue between students and teachers, and the principles of critical literacy that involve access and educational opportunities for all indiscriminately, the cultivation of cooperation and authentic dialogue, the development of critical thinking, and student autonomy (Kaya, 2024).

According to Freire (2000), weighty importance is given to the active participation of the learner in the creation of the teaching material, which implies knowledge of traditions and local culture and the adaptation of the material to their specific needs. In a study by Katsoulis and Koutsoumbas (2013), correspondences in the principles of open education with Freire's critical literacy were found, as open education is based on concepts such as free access to knowledge for all, even for those who were excluded from the conventional education system, shaping of the educational physiognomy by the learners themselves (Adil *et al.,* 2024), self-regulation, and learner autonomy (Teng and Wen, 2024).

Theorists of open education describe the criteria that characterize an educational institution as open and mention the freedom of space and time, freedom of access to all without social and other restrictions, equal learning opportunities for all, and the possibility of shaping the educational material by learners (Wang, 2024).

2.2 New Technologies and Openness

According to Szymkowiak *et al.* (2021), as the trends in the modern era in the field of education increasingly incorporate new information and communication technologies, the concept of open education can only be directly linked to that of

open, inexpensive, and free online access to articles, journals, and research for all interested citizens. In our country, the National Documentation Center (NDC) signed the Berlin Declaration (2003) on open access, which is defined as a source of cultural heritage and human knowledge. Open science refers to the digital access of the scientific and business community and the wider society to research results and especially to research funded by public resources, as society needs open science and vice versa, science needs open society (Sahini and Güzel, 2018).

Jeffery (2008) describes open access as a "human right" demonstrating its importance. Another form of openness implemented through technological means is the Open Government Partnership (OGP, 2014), in which Greece is an active participant, promoted by the Ministry of Administrative Reform and e-Government, and aims to strengthen the role of civil society in public open consultation, the use of new technologies, the fight against corruption, and the promotion of transparency through the cultivation of trust between the state and citizens (Afiyah, 2014; 2024).

According to Tzimogiannis and Komis (2004), the use of appropriate educational software in educational practice is of particular importance, because it helps students in a pleasant way to build new knowledge on existing knowledge, to collaborate, to understand and not to memorize knowledge, and to develop mathematical thinking, but also communication and language skills.

Although the positive effects of the use of tools such as open software were highlighted in a survey of teachers, it was found that teachers' knowledge of the subject was significantly misconceived, and that there was little use of open software in the educational process, which requires information and training (Glogger-Frey *et al.*, 2018; Xanthopoulou, 2020).

However, the important role of Information and Communication Technologies (ICT) in encouraging and supporting learning, as well as in building students' knowledge, skills, and attitudes during educational practice cannot be ignored (Qazi *et al.*, 2021); According to Xochellis (2006), the school of sterile knowledge and cognitive performance is no longer sufficient. The concept of openness in modern schools is linked to a type of school that is reflective, liberating, motivating towards exploratory learning, utilizing new technologies, and based on an open and flexible curriculum for teachers and students.

2.3 The Use of Digital Technologies and Tools in Theatre Education

The use of digital tools in the classroom, particularly in theatre, has changed how teaching is done, making it more interesting. Research by Rizvic *et al.* (2019), Stanton (2024), and Xanthopoulou and Zakopoulos (2024) indicates that such digital resources can increase student participation, creativity, and teamwork. In theatre education, digital storytelling lets students mix traditional theatre with

multimedia elements. Rizvic *et al.* (2019) found that using interactive digital storytelling in classes made students more interested and helped them grasp cultural themes better. This method boosts creativity and helps develop digital skills. Moreover, technologies like virtual reality (VR) and augmented reality (AR) are gaining traction in theatre education.

Kuksa (2009) studied VR's effects in this field and found that these immersive methods enhance traditional ones and boost students' creative thinking. Cameron (2015) supported this by stating that AR can create interactive stages, enabling real-time interaction with digital elements. Overall, literature suggests that digital tools have changed how students engage in learning.

Online platforms allow teachers and students to practice and perform anywhere, removing geographic limitations. This new teaching approach has intensified during the current pandemic crisis. Stanton (2024) studied how virtual platforms facilitated theatre collaborations and noted that these tools kept theatre education alive even with social distancing. Their findings also highlight how online platforms maintain the spirit of live performances while adding new layers to actor-audience interactions.

Additionally, studies highlight that integrating digital tools in theatre education brings both challenges and opportunities. Jensen (2011) pointed out that teachers need to learn how to use these tools effectively. The same study stressed the importance of training programs for teachers on new technologies to improve their confidence in using digital media. Zakopoulos *et al.* (2023) investigated how digital technologies in theatre can raise awareness about environmental concerns. Their research showed that these technologies not only fostered creative thinking in students but also heightened their interest in global issues. Interactive videos, simulations and game-based learning also enhance student learning.

Holbrey (2020) and Manero *et al.* (2015) examined how theatre and gaming intersect, revealing that interactive storytelling helps students tackle problems and develop their storytelling skills. The combination of these areas demonstrates how theatre education can advance with new digital innovations.

In summary, it is evident from the literature that digital technologies have greatly changed teaching methods, boosting student participation, creativity, and educational results in school theatre. Other resources, including interactive whiteboards, projectors, and editing software, enable students to express creativity in the classroom. These resources allow exploration of lighting, video projections, and sound design in performances, while also imparting valuable technical skills that extend beyond theatre (Burnard and Dragovic, 2021).

A growing trend in theatre education, particularly in schools, is gamification, which allows students to engage with scripts, character creation, and story structures

interactively through game-based learning applications. In this regard, Holbrey (2020) and Manero *et al.* (2015) found a positive correlation between gamification and students are getting better at critical thinking and problem-solving, which are important for theatre and regular education.

But, even with the good results that come from digital tools, many problems still need fixing. Wake and Mills (2018) say that not everyone has equal access to digital tools, which could make educational gaps worse. Richardson (2015) points out that both teachers and students must have strong digital skills to use these technologies effectively. Jensen (2011) and Webb and Layton (2023) agree that training programs are key for helping theatre education teachers gain the skills and confidence needed to use digital tools well. Without the right training, teachers can struggle to use these technologies effectively.

The effects of digital technologies on theatre, especially live performances, were examined by Burnett *et al.* (2018). They noted issues between technology and human connections, along with new chances for improvement. Their study showed that finding a balance between technology and traditional methods is vital to keep the unique parts of theatre intact, even as technology opens up new options.

In the end, adding digital technology to theatre education changes how students learn and boosts their creativity, teamwork, and critical thinking skills. Still, to gain fully from these technologies, issues like training, access, and keeping traditional theatre values alive need to be tackled. Future studies should aim at creating inclusive methods to ensure all students can access digital tools in the classroom.

3. Research Methodology

The method proposed as the most appropriate for the above-mentioned research questions and scope is the quantitative methodological approach, as the research questions that need to explain relationships between variables or describe trends are highlighted and data that can be measured by statistical methods that ensure objectivity and systematicity are sought, limiting the subjectivity of the observer (Creswell, 2016).

The data collection tool will be a questionnaire with closed- and open-ended questions to find out "what people think, feel, and/or believe' (Robinson *et al.*, 2010). This research tool provides statistical analysis capabilities of the data, is cost-effective, reliable, and requires little time to collect large amounts of data, thus encouraging the participation and honesty of the respondents, as well as the objectivity of the researcher (Creswell, 2016).

According to Creswell (2016), the data collection process involves five interrelated stages. In the first stage, the target population is identified and specifically the sample of the research, which in this research is 120 theatre education teachers

from selected primary schools in Greece. The sampling mode will be convenience sampling. The second stage involves obtaining necessary permits. For this reason, the questionnaire will be accompanied by a letter informing the participants of the purpose of the research and in accordance with the ethical code in order to ensure anonymity, consent of the adult participants, and voluntary nature of the research (Creswell, 2016).

The third stage concerns the collection of data directly related to the research questions. The fourth stage determined the questionnaire, which consisted of closed-ended questions with a 5-point Likert-type scale and two open-ended questions. Finally, in the fifth stage, the data collection method was determined. The questionnaire will be distributed by the researchers to the participants and returned to them; during its completion, theatre education teachers will have the opportunity to ask for clarifications. It is assumed that theatre education teachers respond within the limits of due collegiality.

The questionnaire was designed to explore theatre education teachers' perspectives regarding the use of digital technologies and tools in theatre education and their broader implications for openness in education. This ensured the anonymity of the participants and included 23 questions structured across three distinct axes, each aligned with the research questions of the study.

The first axis consisted of six questions focused on gathering personal and demographic information about respondents. This axis aimed to establish the profile of the participants and provide insights into their backgrounds and the potential relationships between these variables and their responses to the subsequent axes. The second axis corresponds to RQ1: How do teachers perceive the role of digital technology in enhancing openness in education? It includes eight closed-ended questions, utilizing a 5-point Likert-type scale with responses ranging from 1 (never) to 5 (always). This axis also featured one open-ended question to capture nuanced opinions and insights, beyond structured responses.

The purpose of the questions on this axis was to assess theatre education teachers' attitudes and familiarity with digital tools to promote openness, particularly how well they were thought to support inclusive and collaborative practices. The third axis focused on RQ2: How do educators feel about using digital technologies (such as virtual stage design and digital storytelling) to increase student interest in theatre education? It has one open-ended question and seven closed-ended questions with a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree).

With an emphasis on theatre education, these inquiries aimed to pinpoint certain obstacles and facilitators related to the incorporation of digital technology in classrooms. The impact of digital technologies on student involvement and creativity, the importance of professional development, the balance between traditional and digital approaches, and the availability of resources are among the

topics covered. The study ensured a thorough investigation of theatre education teachers' views and experiences with digital technology in education, especially in the context of theatre, by designing the questionnaire in line with the research topics. The second and third axes' open-ended questions provided qualitative information that could enhance the quantitative results and provide deeper comprehension of the underlying themes.

According to Creswell (2016), the survey sample was determined by the research question. In this study, the unit of analysis was considered to be, the primary school, theatre education teacher. Our sample consisted of 120 theatre education teachers from Greek primary schools during the school year 2023-2024.

Convenient sampling is considered a suitable method for conducting the research, as the sample is convenient, the research is small-scale, and will not lead to generalizations (Creswell, 2016). Finally, an important issue in an empirical study is ensuring its validity and reliability. Validity refers to whether the research actually measures what it intends to measure. Reliability refers to the stability of the research such that if the research is repeated under the same conditions, it will produce the same results (Robson, 2010; Creswell, 2016).

To ensure the validity of this study, content validity was used, whereby the questionnaire was conducted based on a literature review to meet the purpose and research questions and free from difficult terminologies and ambiguities. To ensure the reliability of the questionnaire, internal consistency reliability was used through control questions that aimed to ensure consistency of the participants' responses.

To ensure the reliability and validity of the survey, the questionnaire was given on a pilot basis to two theatre education teachers who did not take part in the survey, in order to make any observations and to check the time required for its completion, so that the necessary corrections could be made. After completion of the questionnaire, data collection and analysis were performed using the descriptive and statistical program Microsoft Excel.

4. Research Results and Discussion

4.1 Personal Data of Theatre Education Teachers (1st Axis)

The sample of theatre education teachers was 78.33% female and 21.67% male. Regarding the length of service of the respondents, 67.33% had served up to 10 years, 32.67% from 11 to 20 years. Next, regarding the level of education of teachers, 53.33% have a basic degree, 16.67% have a second degree, while 30% have a postgraduate degree. Referring to their ICT training back ground the 48.33% has attended such a training program, while 51.67% has not. All the data that constitute the demographics are summarized in Table 1 below.

Table 1. *Demographics*

Demographic Category	Description	Percentage
Gender	Female	78.33%
	Male	21.67%
Length of Service	Up to 10 years	67.33%
	11 to 20 years	32.67%
Level of Education	Basic Degree	53.33%
	Second Degree	16.67%
Length of Service	Postgraduate Degree	30%
ICT Training	Attended ICT Training Program	48.33%
	Did Not Attend ICT Training Program	51.67%

Source: *Own study.*

4.2 Questions on the Importance Theatre Education Teachers Attach on the Role of Digital Technologies in Enhancing Openness in Wducation (2nd Axis)

The researchers aimed to gauge the importance that theatre education teachers place on digital technology to enhance openness in education. The focus of this axis was to understand how theatre education teachers perceive the role of technology in facilitating educational opportunities, cultural integration, interdisciplinary learning, student-centered approaches, and cooperation with peers.

The responses to questions A1–A9 provide insight into how digital technologies are integrated into educational practices and their significance in creating a more inclusive, open learning environment. A significant portion of the respondents (58%) emphasized the role of digital technologies in facilitating differentiated instruction. 48% of theatre education teachers said they "often" use digital tools to customize learning for students, and 10% "always". This shows that theatre education teachers view digital technologies as important in providing individual support and meeting different learning needs. However, 37% reported that they used differentiated instruction "sometimes," and 5% "rarely," indicating that using digital technology for this purpose could be improved.

Theatre education teachers overwhelmingly value the role of digital technologies in supporting student-centered teaching approaches, with 77% of respondents indicating that they "often" (47%) or "always" (30%) use digital tools in this way. Digital technologies enable more active learning, personalized instruction, and greater student engagement, which are the key components of a student-centered model. Only 24% (17% sometimes and 7% rarely) reported less frequent use, suggesting that while technology is widely embraced, there is room for further integration, especially in the field of theatre education.

While the use of digital technologies in evaluation practices is less widespread, nearly half (46%) of the teachers rely on digital tools to assess students based on their mastery of content. 33% of teachers reported evaluating "sometimes" using

digital technologies, and 15% "rarely" or "never". This indicates that, while mastery-based evaluation is valued, there is a need for more consistent and widespread use of technology to enhance assessment practices.

The majority of teachers (53%) reported that they "often" (36%) or "always" (17%) used new technologies in their lessons, indicating that digital technologies are considered vital for enhancing the teaching-learning process. However, 33% of respondents stated they use new technologies "rarely" or "never," showing that barriers such as lack of training or technological infrastructure may hinder the widespread adoption of digital tools in the classroom.

Digital technologies play a significant role in fostering collaboration among theatre education teachers, with 80% of respondents indicating that they "often" or "always" engage in collaborative activities using digital platforms. These technologies facilitate the exchange of educational materials, discussions of pedagogical practices, and sharing of resources, making cooperation more efficient. Only 18% indicated "sometimes" and 2% "rarely," suggesting that digital collaboration is strongly ingrained in teachers' practices.

In the open-ended responses, 23.33% of the teachers (28 out of 120) expressed the need for further training in digital technologies and their integration into lessons. Teachers acknowledged the value of digital tools but highlighted challenges, such as the traditional approach to evaluation, workload, and inadequate technological infrastructure.

This suggests that, while there is an interest in using digital technologies for openness and inclusion, there are still significant barriers that need to be addressed to fully harness their potential. Table 2 summarizes the findings of the second axis regarding the importance that teachers attach to the role of digital technologies in enhancing openness in education.

Table 2. *Theatre Education Teachers' Perspectives on the Use of Digital Technologies in Education*

Focus Area	**Response Options**	**Percentage**	**Key Insights**
Differentiated Instruction	Often	48%	Digital tools are commonly used to tailor educational opportunities to individual student needs.
	Always	10%	Teachers prioritize personalized support with digital technologies.
	Sometimes	37%	Some teachers use digital tools for differentiation, but not consistently.
	Rarely	5%	Limited use of digital tools for differentiated instruction.
Student-Centered Approaches	Often	47%	Digital technologies are key in fostering student-centered learning, promoting engagement and active learning.
	Always	30%	Many teachers emphasize the importance of digital tools in student-centered teaching.

	Sometimes	17%	Less frequent use of digital tools for student-centered approaches.
	Rarely	7%	Limited integration of digital technologies in student-centered teaching.
Mastery-Based Evaluation	Often	46%	Digital tools are used for evaluating students based on content mastery.
	Sometimes	33%	Moderate use of digital technologies for mastery-based assessment.
	Rarely	15%	Infrequent use of digital tools for evaluations, indicating areas for improvement.
Use of New Technologies in Lessons	Often	36%	A significant portion of theatre education teachers frequently use new technologies in their lessons to enhance teaching and learning.
	Always	17%	A smaller group uses new technologies in every lesson.
	Rarely	33%	Some teachers rarely use new technologies, potentially due to barriers like training or infrastructure.
	Never	16%	A portion of teachers does not use new technologies at all in their teaching.
Teacher Collaboration	Often	43%	Digital tools facilitate frequent collaboration among teachers, supporting resource and knowledge sharing.
	Always	37%	Strong collaboration in educational practices through digital tools.
	Sometimes	18%	Collaboration happens occasionally, but not consistently for all teachers.
	Rarely	2%	Digital collaboration is largely integrated into teaching practices.
Need for Further Training	N/A	23.33 %	Teachers expressed a need for further training in digital technologies to integrate them into teaching and intercultural education.

Source: *Own study.*

4.3 Questions on Theatre Education Teachers' Perspectives on the Use of Digital Tools (e.g., Digital Storytelling, Virtual Stage Design) in Enhancing Student Engagement in Theatre Education (3rd Axis)

The aim of the following questions was to explore the factors that influence the use of digital tools in enhancing student engagement in theatre education. This section focuses on the challenges theatre education teachers face when integrating digital tools (such as digital storytelling, interactive videos or virtual stage design) into their teaching practices, how digital tools can affect the quality of theatre education, and their opinions on the role of technology in engaging students. The impact of digital tools on students with learning difficulties and foreign students, as well as the socioeconomic environment of the students, will also be addressed.

In response to whether digital tools, such as digital storytelling, interactive videos or virtual stage design, make teaching theatre easier, 42% of theatre education teachers disagreed that these tools complicate their work. Meanwhile, 25% agreed, and 17% strongly agreed, suggesting that while there is some skepticism, many teachers see the potential of digital tools to enhance theatre education.

A large percentage of theatre education teachers (73%) agreed that the current curriculum do not effectively incorporate digital tools for theatre education, indicating a mismatch between available resources and the tools needed to enhance student engagement. Only 12% remained neutral, 13% disagreed, and 2% strongly disagreed. 45% of theatre education teachers (33% agree and 12% strongly agree) believed that the socioeconomic and educational environment of students plays a significant role in the effectiveness of using digital tools in theatre education.

However, one-third of the theatre education teachers remained neutral and 22% disagreed with this view. A significant 27% agreed with the statement, suggesting some variation in parental engagement with technology. 64% of theatre education teachers (37% agree and 27% strongly agree) believed that schools need to be more open to incorporating technology in theatre education.

However, 1/5 of the theatre education teachers remained neutral, and 17% disagreed with the idea that schools should open up more to technology integration. In the open-ended question, 32 theatre education teachers (26.67% of respondents) expressed the need to redesign educational materials (such as books) to better incorporate digital tools into theatre education. Theatre education teachers emphasized their desire for clearer roles and defined expertise when working with students' parents on joint digital learning initiatives. Table 3 summarizes theatre education teachers' insights on digital tool usage in theatre education.

Table 3. *Theatre Education Teachers' Insights on Digital Tool Usage in Theatre Education*

Question	Finding	Percentage	Additional Information
C1: Impact of Digital Tools on Teaching Theatre	42% disagree that digital tools complicate teaching, while 25% agree, and 17% strongly agree.	42% Disagree, 25% Agree, 17% Strongly Agree	Many theatre education teachers see potential in using digital tools for teaching theatre, though some remain skeptical.
C2: Curriculum and Digital Tools in Theatre Education	73% agree that the curriculum and textbooks do not incorporate digital tools effectively.	73% Agree, 12% Neutral, 13% Disagree, 2% Strongly Disagree	The curriculum doesn't align well with the potential of digital tools in theatre education.
C3: Socio-Economic and Educational Environment Impact	45% of theatre education teachers agree that the socio-economic and educational environment affects the use of digital tools in theatre.	45% Agree, 33% Neutral, 22% Disagree	The socio-economic environment plays a significant role in the effectiveness of digital tools in theatre education.
C4: Schools Being Open to Technology in Theatre Education	64% of theatre education teachers agree that schools should be more open to technology in theatre education.	64% Agree (37% Agree + 27% Strongly Agree)	Many theatre education teachers believe that schools need to embrace more technological integration in theatre education.
C5: Open-Ended	26.67% of theatre education teachers (32 out of 120)	26.67% (32 Teachers)	Theatre education teachers want clearer

Responses (Redesigning Educational Materials)	expressed the need for redesigning educational materials to better incorporate digital tools.		roles and better collaboration with parents to integrate digital tools in theatre education.

Source: *Own study.*

These findings suggest that while theatre education teachers see the value of digital tools such as interactive videos, digital storytelling and virtual stage design in theatre education, challenges remain in fully integrating these tools. A significant portion of theatre education teachers acknowledge the influence of socio-economic factors on the effectiveness of these tools, and there is a desire for better cooperation between theatre education teachers and parents to support students in using digital tools.

Additionally, a large percentage of theatre education teachers believe that schools should be more open to technological advancements in the field of theatre education. Regarding the application of openness in the learning process, as is evident through the answers, most theatre education teachers adopt the student-centered model of teaching, seeking during the educational practice the involvement and active participation of students in the cognitive process.

However, although the theatre education teachers' answers operate on the basis of the initiative-cooperative teaching methodology, the majority of the answers were positive. Almost half (58%) gave a positive answer to the adoption of differentiated teaching, given that differentiation of teaching is an important characteristic of openness, as it aims to meet the educational needs of all students without exception, and heterogeneous classes characterize the schools surveyed to a significant extent.

In addition, the differentiation of teaching by focusing on the interests, special aptitudes, and abilities of each individual promotes the autonomy and self-directed action of students, helps all students access the educational good, and offers serious potential for improvement in heterogeneous classes. In addition, more than half of the respondents (54%) used new technologies in the learning process, which confirms the importance of the use of ICTs, as it helps the construction of new knowledge and cooperation, and prevents the memorization of knowledge (Tzimogiannis and Komis, 2004).

This can be explained by the percentage of theatre education teachers' training in ICT (52%), but conversely, the absence of their use is also due, on the one hand, to the lack of similar training and, on the other hand, to the lack of appropriate infrastructure (sufficient number of computers and interactive whiteboards). The findings of the first research question align with the literature (Tzimogiannis and Komis, 2004; Rizvic *et al.,* 2019; Zambeta *et al.,* 2017) who found that digital storytelling promotes creativity and interdisciplinary learning, consistent with the 66% of teachers applying interdisciplinarity.

The replies to the second research question (RQ2) indicated that theatre education teachers felt uncertain about using digital tools to increase student involvement in theatre education. Digital tools like digital storytelling, interactive video, digital games and platforms, Virtual (VR) and Augmented Reality (AR) changed how theatre education teachers teach, making learning more interesting. This was supported by the study results, showing that around 54% of theatre education teachers started using these new technologies, suggesting that digital tools are important for making learning interactive and innovative.

Theatre education teachers noted that using digital storytelling and interactive videos in theatre education helped students create stories that mixed classic theatre methods with multimedia. This aligns with Rizvic *et al.* (2019), who mentioned that this method boosts student participation and cultural awareness, making teaching more varied and enhancing digital skills. However, even though digital tools promote creativity, teamwork, and student engagement, challenges remain due to theatre education teachers' inability to effectively use these technologies.

The research sample pointed to a lack of training in new technologies and poor school infrastructure, with 52% of theatre education teachers expressing a need for improved ICT training. This finding supports Jensen's (2011) research, which highlighted that theatre education teacher training is essential to tackle the difficulties of using digital tools and technologies.

As for virtual reality and augmented reality which have recently come to the fore, only a few theatre education teachers have employed them in their day to day teaching. The answers of this study revealed that many teachers wanted to use these tools affirming the conclusions of Kuksa (2009), Holbrey (2020), Manero *et al.* (2015), and Cameron (2015) that VR can prove helpful in enhancing students' involvement and fostering their creative thinking as many teachers reported in the present study. Where teachers and students responded 'no' to the questionnaire, they ranged from having little or no experience in the use of television and the radio.

They stressed on the need for change management and collaboration. Theatre education teachers also said that yes, such negative aspects were there, but they had only thin edge training in interactive modes and innovative methods of teaching, but training did have some influence. This research also corroborates the protectionist stance taken up by Jensen (2011) who was very critical of the lack of proper training for teachers in pedagogical appliances especially in integration of technologies in teaching theatre.

Stanton (2024) emphasized the role of virtual platforms, especially during the COVID-19 pandemic. The pandemic has improved collaboration and engagement, demonstrating that virtual platforms can help with teamwork. Moreover, the responses showed that theatre education teachers wanted more training on using interactive technologies and inclusive education to meet the changing needs of

diverse students, including those from different backgrounds and those with learning challenges. Digital tools have benefits, but there are obstacles to their use. The main issue, as pointed out in the responses, is the lack of proper infrastructure in schools.

Theatre education teachers said they don't have enough resources like computers and interactive whiteboards, which makes it hard to use digital tools well. This is in line with Wake and Mills (2018), who claim that not everyone has the same access to technology, making educational inequality worse. Another problem is the old-fashioned mindset in education that makes change slow, especially in assessment and teaching methods.

Burnett *et al.* (2018) and Robin (2015) point out that mixing traditional theatre with digital tools can cause difficulties for teachers who want to keep live performance traits while using technology. This balance is important in theatre education since physical expression and audience interaction are key to learning.

Most teachers agree that openness in schools is important, which matches the views of Saitis (2008), Burnard and Dragovic (2021), Mavrogiorgos (2019), and Sørensen and Zukas (2018). They say this openness helps integrate digital tools and promotes community involvement in education, allowing schools to adapt to the changing needs of society.

In conclusion, while digital tools in theatre education can enhance student engagement and creativity, many challenges remain, such as the need for theatre education teacher training, infrastructure problems, and keeping traditional theatre practices intact. As research on digital technologies in education progresses, it will be important to develop inclusive strategies to ensure equal access to these tools and create a culture of collaboration that welcomes change while maintaining the essential values of theatre.

5. Conclusions, Proposals, Recommendations

Through the theatre education teachers' responses, although the majority seem to adopt the student-centered teaching approach, the assessment of students is primarily based on the acquisition of information transmitted by the teacher, which indicates the teacher-centered model of assessment. The adoption of differentiated teaching (almost half of them apply), seems an important indicator of the access of all students without exception to the educational good.

In addition, technology was used by almost half of the respondents, not a high percentage of the importance of ICT in education, while only 1/5 of them seemed to accept diversity through similar educational activities. In terms of the frequency of collaboration, a large majority (80%) of theatre education teachers collaborate on educational issues.

This study emphasizes that while theatre education teachers generally acknowledge the potential of digital technologies to enhance openness in education, several challenges impede their effective integration.

The findings of the second research question revealed that digital tools hold significant potential in enhancing students' engagement and creativity in theatre education. The answers showed that educators acknowledge the transformative role of digital technologies like interactive video, digital storytelling, digital platforms, virtual (VR) and augmented reality (AR) in enhancing students' participation, involvement and innovative thinking.

They also mentioned that these tools enrich theatrical practices and foster collaboration among peers. Overall, the majority of theatre education teachers see the need of integrating digital technologies, viewing them as indispensable for adjusting to the changing educational landscape and societal needs.

However, theatre education teachers face difficulty in implementing digital tools in classrooms because of the lack of sufficient training in new technologies, resistance to adopting new teaching methods, and inadequate infrastructure. To overcome these issues, theatre education teachers have pointed out the need for more training in digital technologies, and inclusive teaching methods.

Thus, it becomes clear that schools need to invest more in technology and adapt proper educational materials to promote openness and innovation. Theatre education teachers also underline the significance of building a culture of teamwork.

It should be mentioned that the present research has also limitations. An important limitation was the fact that the survey was small in scale and could not lead to generalizations, considering that no corresponding empirical research could be found to make proper comparisons.

Future studies should examine how digital tools can be used by students in schools. Adding qualitative research methods, such as in-depth interviews and participant observation, can help to better understand theatre education teachers' experiences with digital tools and how they affect openness in learning. Future research should also investigate the long-term impact of digital tools on student creativity and engagement, particularly in theatre education, in which research is still limited.

Another suggestion is to incorporate students' perspectives on the use of digital tools, which can further enrich their understanding in this field. Qualitative research methods capture nuanced experiences, while studies on emerging technologies such as AI and advanced VR/AR could reveal their potential in theatre education.

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